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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/784,030

02/20/2004

Joachim Sacher

SA 111

1724

7590

03/02/2006

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EXAMINER

LEPISTO, RYAN A

ART UNIT

PAPER NUMBER

2883

DATE MAILED: 03/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

10/784,030

Applicant(s)

SACHER ET AL.

Examiner

Ryan Lepisto

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5-10, 12-16, 18 and 19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-10, 12-16, 18 and 19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Germany on 27 January 2004. It is noted, however, that applicant has not filed a certified copy of the Germany 2004 230.8 application as required by 35 U.S.C. 119(b).

Information Disclosure Statement

2. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered. A copy of all non-patent literature and foreign patent documents need to accompany the PTO-892.

Drawings

3. Applicant stated in the remarks dated 27 January 2005 that a replacement figure as enclosed, but no such figure is in the file.

Specification

4. The attempt to incorporate subject matter into this application by reference to the reference mentioned in the "Background of the Invention" is ineffective because a copy of the references were not supplied to the office. The applicant must supply the documents cited or delete the references from the specification. Applicant has not replied to this requirement from the last action.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. **Claims 1, 5-10, 12-14 and 19** are rejected under 35 U.S.C. 102(b) as being anticipated by **Mehuys et al (US 5,537,432)** (Mehuys). Mehuys teaches a laser diode arrangement for generating single mode tunable laser radiation (Figs. 1, 2A-B, 13, 15) comprising a laser diode (11, 136, 156) having a rear facet (21, 134, 154) having a reflectivity of between 0.5 and 5% (column 4 lines 25-274) that the radiation is transmitted through (uncoupled) (radiation is uncoupled from both ends, see the arrows in the drawings) and coupled to an additional collimator (Fig. 13, 142) (that can be a GRIN rod (cylinder) lens, column 4 line 35), an anti-reflection coating (AR) on a front facet (23, 162) having a reflectivity of 0.1% or less forming a first resonator and tapered trapezoidal shaped section (17, 19) with widths from 0.5 to several μm (column 5 lines

5-6) that blocks certain light (Fig. 3) and therefore has a less than 1:1 ratio between the rear facet (21) and grating (15, 132, 140, 145), the grating reflects all light incident on it, an external resonator (Fig. 1 (13, 15); Fig. 13 (132, 138, 140, 142); Fig. 15 (152, 158, 160)), a collimating lens (13, 138, 142, 160) and grating (15, 132, 140, 145) arranged to reflect light back to the diode (11), a mirror (Littman configuration, Fig. 15, 152) and an array of diodes (Fig. 26).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 2 and 3** are rejected under 35 U.S.C. 103(a) as being unpatentable over Mehufs as applied to claims 1, 5-10, 12-14 and 19 above, and further in view of **Sacher (US 5,867,512)** (Sacher).

Mehufs teaches the laser arrangement described above.

Mehufs does not state explicitly the lens being aspheric or the grating being in the area of the Raleigh length of the focus of lens.

Sacher teaches a laser diode Littman arrangement (Figs. 1A, C) for generating single mode tunable radiation comprising a laser diode (1) having an anti-reflection coating (2), a front facet (near 2) and rear facet (opposite the front facet) forming a first resonator, an external resonator (2, 4, 7) coupled to the first resonator, a collimating

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lens (3), a refraction grid (4), a mirror (7) and cylindrical (aspheric) lens (16). Light from the diode (1) is collimated by lens (3) and coupled to the refraction grid (4) to the cylindrical lens (16) and mirror (7) and back to the first resonator (column 5 lines 39-55, column 6 lines 1-17) wherein because this is a Littman arrangement the refraction grid (4) has to be in at least in an area of the Raleigh length of the focus of the lens (3).

Mehuys and Scifres are analogous art because they are from the same field of endeavor, laser, lens and grating arrangements.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the layout taught by Sacher in the tapered laser taught by Mehuys since both are laser, lens and grating coupling structures.

The motivation for doing so would have been to increase the spectral selectivity, resonator length and to guarantee single mode emission with small line widths (Sacher, column 1 lines 55-60).

7. **Claims 15-16 and 18** are rejected under 35 U.S.C. 103(a) as being unpatentable over Mehuys as applied to claims 1, 5-10, 12-14 and 19 above, and further in view of **Scifres et al (US 4,688,884)** (Scifres).

Mehuys teaches the laser arrangement described above.

Mehuys does not state explicitly that the active zone has a rectangular shape parallel to the epitaxial plane or a width of between 5 and 600 micrometers normal to the epitaxial plane or a width of between 5 and 300 micrometers normal to the epitaxial plane at the front facet. Mehuys does show the taper having rectangular shape at the

end facets since even though the active layer is tapered at the output planes the cross-section will be rectangular at least at the cross-section at the very ends.

Scifres teaches a broad area tapered laser structure (column 2 lines 43-49, column 3 lines 39-43, 57-59 and column 4 lines 4-8) comprising rectangular cross-section (column 3 lines 58-59) with a front facet width of greater than 15 micrometers (column 3 line 40).

Mehuys and Scifres are analogous art because they are from the same field of endeavor, tapered laser arrangements.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the dimensions taught by Scifres in the tapered laser taught by Mehuys since both are tapered laser structures.

In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

The motivation for doing so would have been to increase power efficiency and coupling efficiency and the brightness of the laser (Scifres, column 2 lines 42-65).

Response to Arguments

8. Applicant's arguments filed 27 January 2005 have been fully considered but they are not persuasive.

With regard to the arguments concerning the claimed rejected by the Mehuys reference: In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., setting of the reflectivity of the out-coupling facet to the effective reflectivity of the external cavity, not needing a spatial filter are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

With regard to claims 15-16: The Mehuys reference was not used to reject these claims. Further, the dependency of claim 18 has been amended so the arguments for this claim are rendered moot.

With regard to the argument that the front facet of Mehuys does not have an anti-reflective coating with less than 0.1% reflectivity: As stated in the previous rejection, the facet (23, 162) is taken as the "front" and an anti-reflection coating (AR) is coated on the "front" facet (23, 162) having a reflectivity of 0.1% or less (column 4 lines 29-30).

Further, with regard to the amended portion of claim 1: As noted above, radiation is transmitted (or "uncoupled") from both ends of the laser as shown by the arrows in the figures.

Applicant's arguments with respect to claims rejected by the Sacher have been considered but are moot in view of the new ground(s) of rejection as described above.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan Lepisto whose telephone number is (571) 272-1946. The examiner can normally be reached on M-F 7:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ryan Lepisto

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Date: 2/23/06



Frank Font

Supervisory Patent Examiner

Technology Center 2800